

Pioneer Healthcare Cold Chain Cloud Platform (PHCCCP)

Pioneer IoT

-The NB IoT Temperature and Humidity Monitoring Solution



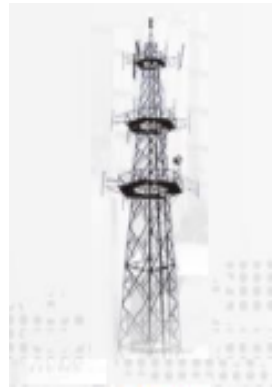
# Healthcare Cold Chain Temperature & Humidity Monitoring Solution



NB IoT Data Collection Terminal



NB IoT technology



Telstra/Vodafone

Carrier network



Management Cloud Platform



Data Query and Usage



Computer



Apps



SMS, voice, sound-light, email, and other alarms



# Temperature and Humidity Sensors

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Name	Temperature and Humidity Sensor
Material	Shell: PA66 with 30% of fiber, cold resistant
Waterproof	IP66
Dimensions	114.5 mm x 71.5 mm x 22 mm
Weight	< 200 g
Communications Type	NB IoT
Communications Interval	Custom
Locating Method	NB IoT GPS (Optional)
Temperature Collection Range	Ordinary low temperature: $-40^{\circ}\text{C}$ to $+65^{\circ}\text{C}$ ; ultra-low temperature: $-200^{\circ}\text{C}$ to $+200^{\circ}\text{C}$
Humidity Collection Range	0-99%
Temperature Collection Precision	Normal: $\pm 0.5$ for $0^{\circ}\text{C}$ to $65^{\circ}\text{C}$ and $\pm 1$ for $-40^{\circ}\text{C}$ to $0^{\circ}\text{C}$ ; high-precision: $\pm 0.1$
Humidity Collection Precision	$\pm 5\%$
Light Sensor	Yes
Vibration	Yes
Battery	Polymerized lithium batteries of 6000 mAh/2500 mAh (aerospace qualification)
Screen	LCD monochrome dot matrix
Alarm	Buzzer + indicator

# Cold Chain Cloud Platform (CCCP)

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	Stage (Level)	Object (Perspective)	Content (Summary)	Feature	
<b>Logistics Cold Chain Cloud</b>	<b>Logistics</b>	Person	Precise sample management	Logistics comprehensive query Sample arrival management Collection query Fees management	<b>NB IoT</b>  <b>Internet</b>  <b>Big data</b>
		Vehicle	Whole-course process monitoring		
		Goods	Goods arrival		
		Warehouse			
Hospital   Laboratory	<b>Business</b>	Application ticket	Detailed business process	Application ticket input Order issuing Goods order issuing Exception management	
		Business process	Convenient information input		
		Channel routing	Efficient data Hospital information management		
	<b>Industry</b>	Supply chain	Hospital information management Affiliate management	Hospital and laboratory project maintenance	
		Demand chain	Regional industry management	Laboratory and detection institute management	
		Industry chain	Laboratory transfer management	Outbound sample transfer management	

# Characteristics of HCCCP

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**Atom**

## Atomized Data

A unique bar code is generated and stuck to each sample. In addition, each application, packaging order, and shipping order has a unique identification.



**Group**

## Management in Group

Organizational management is introduced to support affiliates. Global monitoring is adopted in branch departments. All levels of employees possess their own permissions.



**Centralization**

## Centralized Information

Data centers are built to release all data, including the hospital code, detection item code, and pricing. Therefore, the management is specialized and unified.



**Visualization**

## Visualized Process

Seamless monitoring is adopted in the whole course from sample receiving to delivering. The system records all changes of the samples and visualizes the whole process.

# Pioneer NB IoT HCCCP Solution Advantages



NB IoT transmission, easy to install and maintain



Alarm systems available for sound-light, SMS, voice, app



Low power consumption required for monitoring devices with only 6  $\mu$ A standby current



NB IoT signal coverage up to 99% population in Australia



Ultra-strong protection with IP67 qualification



Real-time locating and tracking(Optional)



Ultra-low data cost



Zero data lost safeguarded by transfer resume